CORE TRUTHS

A playbook that enlightens customers on how the ‘latest technology’ is not always what it seems.


intel
CORE
TRUTHS
Why the latest doesn’t
always mean the latest.

Notices & Disclaimers

Performance varies by use, configuration and other factors. Learn more at www.Intel.com/PerformanceIndex.

Performance results are based on testing as of dates shown in configurations and may not reflect all publicly available updates. See appendix for configuration details. No product or component can be absolutely secure.

Your costs and results may vary.

Intel technologies may require enabled hardware, software or service activation.

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All versions of the Intel vPro® platform require an eligible Intel processor, a supported operating system, Intel LAN and/or WLAN silicon, firmware enhancements, and other hardware and software necessary to deliver the manageability use cases, security features, system performance and stability that define the platform. See intel.com/performance-vpro for details.

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There’s a long history of selling half-truths to unsuspecting customers.



Trust me…

Trust me, it’s new



Can I trust that this is the latest?





No! This is the latest!

Other names and brands maybe claimed as the property of others

CORE TRUTH #1

Core truth #1

The Ryzen 5 7520U is built on dated Zen 2 architecture released in 2019!

Fact:



The number 7 is the only new thing about **some** AMD 7000 Series processors.

The Ryzen 5 7520U is actually built on Zen 2 architecture released WAY BACK in 2019!



The Intel Core i5 1335U is based on our latest architecture, Raptor Lake, released in 2023!

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Industry leaders are also aware of this half-truth

ars technica

"It's … a way for AMD to relabel as 'new' a handful of *older processors from years past*." January 2023.

THE VERGE

"It also, conveniently **for** AMD, gives people less cause to whine when the company puts old cores in new chips."
September 2022.

The Register®

"*No these chips are* using AMD's Zen 2 cores that launched alongside its Ryzen 3000-series ***parts in 2019***."
September 2022.

PCWorld

"**AMD's new naming scheme for mobile Ryzen is a doozy…**You can't tell the players without a scorecard"
September 2022.

ars technica

"…But as a consumer, you're still intended to see the number 7 and think, "Oh, this is new.."
September 2022.

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The latest doesn't always mean the latest

Let's compare the latest 13th Gen Intel Core i5 vs. AMD Ryzen 5 7000 series in performance using CrossMark.

They are both marketed as the 'LATEST' technologies, but the Core i5 1335U is around 83% better than Ryzen 5 7520U.

Keep this in mind when ordering 'comparable' or 'equivalent' technologies.

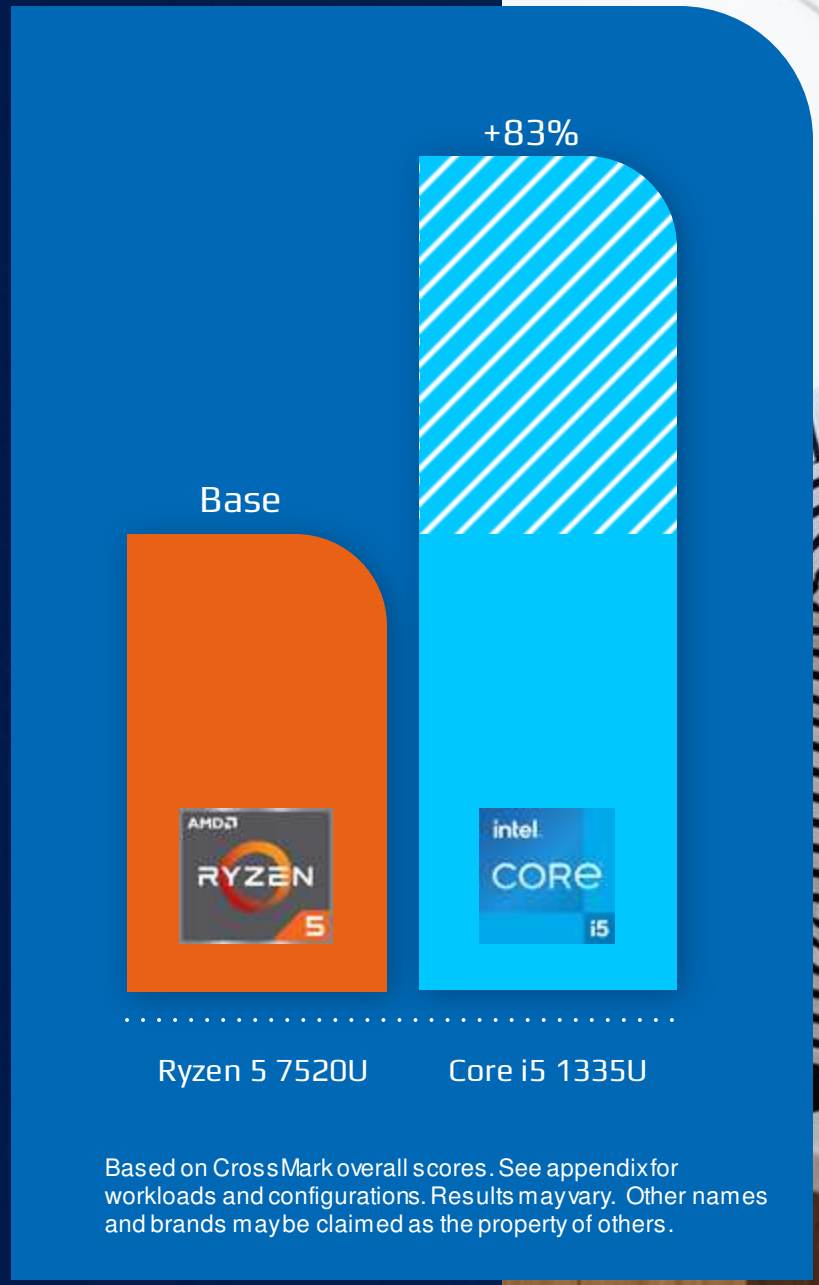


Based on CrossMark overall scores. See appendix for workloads and configurations. Results may vary. Other names and brands may be claimed as the property of others.

Latest doesn’t mean better

While searching for comparable laptops online, John notices that 13th Gen are the latest so this is what he will compare with. In his research he also sees the latest AMD 7000 series, so he considers AMD’s latest gen too.

In this situation, latest doesn’t always mean better performance or product experience.



Based on CrossMark overall scores. See appendix for workloads and configurations. Results may vary. Other names and brands may be claimed as the property of others.



Be careful what you wish for

In a commercial buying scenario, it's common for procurement teams to compare 'equivalent' options when filling out tender specs. For example, you might word the spec to include 'latest gen Intel Core i5 or equivalent'.

The Intel Core i5 and AMD 7000 Series are both 'latest' technologies but Core i5 1335U is up to 83% better in performance than Ryzen 5 7520U!

In this example, the Ryzen 5 7520U would be far from equivalent!



Based on CrossMark overall scores. See appendix for workloads and configurations. Results may vary. Other names and brands may be claimed as the property of others.



CORE TRUTH #2

Core Truth #2

AMD's old architecture is hidden in plain sight!

Hidden in plain sight



"As a consumer, you're still intended to see the number 7 and think, "Oh, this is new." ArsTechnica, September 2022, Screenshot Source: https://arstechnica.com/gadgets/2022/09/amd-is-making-laptop-cpu-model-numbers-simultaneously-less-and-more-confusing/

Ryzen™ 5

7640U

7	6	4	0	U
Portfolio Model Year	Market Segment	Architecture	Feature Isolation*	Form Factor/TDP
7 → 2023 8 → 2024 9 → 2025	x1xx → Athlon™ **Silver** x2xx → Athlon™ **Gold** x3xx → Ryzen™ **3** x4xx → Ryzen™ **3** x5xx → Ryzen™ **5** x6xx → Ryzen™ **5** x7xx → Ryzen™ **7**	1 → Zen **1** \| Zen **+** 2 → Zen **2** 3 → Zen **3** \| Zen **3+** 4 → Zen **4** 5 → Zen **5** etc.	0 → Lower model within segment 5 → Upper model within segment	HX → **55**W+ Max Performance HS → **~35**W+ Thin Gaming/Creator U → 15-28W Premium Ultrathin C → 15-28W Chromebook

CORE TRUTH #3

Core Truth #3

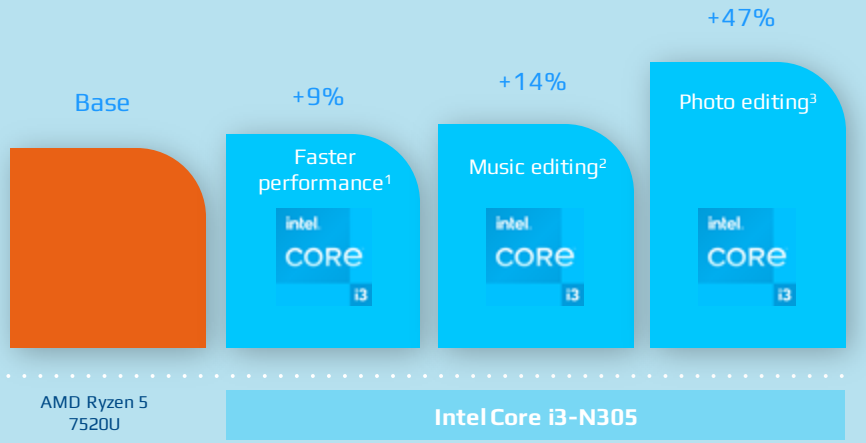
The future of education and learning *depends* on the latest technology

How should you evaluate the future of education?

There are many considerations when researching and purchasing for schools.

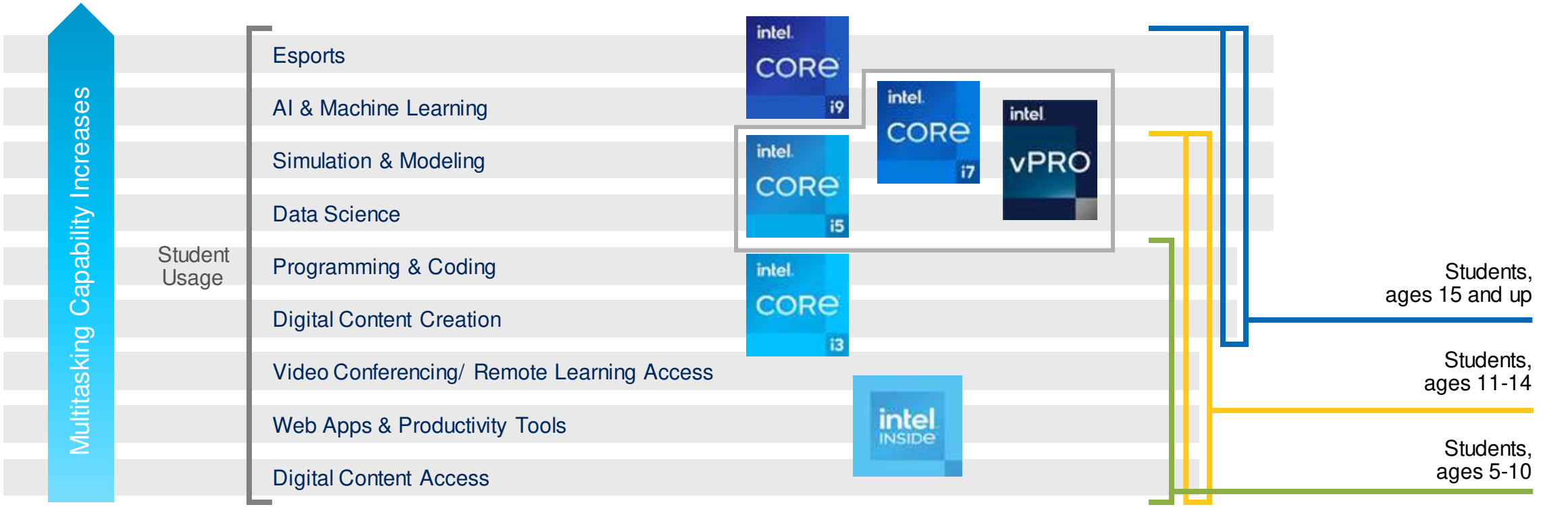
But the most important is that the students are getting the best performance from the latest technology.





[1] Performance Based on CrossMark Overall Scores
[2] Based on time to convert MP3 music file to MIDI with Ableton
[3] Based on time to apply lens correction filter in Adobe Photoshop
See Appendix for workloads and configurations. Results may vary

Intel Powers a Wide Range of Choices to Meet Students' Needs



Fundamentals of a Technology Platform for Anywhere Learning

Connectivity | Manageability | Security | Graphics Performance | Audio/Video Performance | Computing Performanc

Note: Intel® Core i9 processor is not available on machines running Chrome OS

CORE TRUTH #4

Core truth #4

Not all cores give you the best overall performance.

Consumer Notebook Performance Leadership



Performance Based on Crossmark Overall Scores
See appendix for workloads and configurations. Results may vary. Other names and brands may be claimed as the property of others.

Beyond performance

Co-engineered designs featuring Intel 13th gen cores deliver an experience far beyond performance alone.



1

Built with you in mind

We've partnered with your favorite brands to co-engineer a new standard of the best thin & light laptops available today.

2

Hardware-based security

Intel 13th Gen Core offers the ideal protection against any malware – within the computer hardware itself. Intel CPUs can detect malware better than AMD chips.

3

Performance hybrid architecture

With an increase in core count, Intel's performance hybrid architecture will optimize your gaming, content creation, and productivity. It's time to unleash the power of next-level performance!

4

Intel Evo

Intel Evo laptops with 13th Gen Intel Core will deliver better battery life and Intel Unison's seamless multi-device platform experience.

5

Intel vPro

vPro with Intel 13th gen delivers the most comprehensive security, necessary hardware for companies in need of a PC refresh, and increased productivity for all employees.

Appendix

Benchmarks and Workloads

- **CrossMark:** This easy-to-run native cross-platform benchmark from the BAPCo consortium measures the overall system performance and system responsiveness using models of real-world applications.
- **Applying a lens correction filter in Adobe Photoshop:** This test entails correcting an image for the distortion caused by the shape of the camera lens.
- **Converting and exporting music files in Ableton Live:** This workload documents converting the melody track of an .mp3 file to MIDI and capturing the time, in seconds, of the process.

Configuration details

Measured as of May 2023

Processor: 12th Gen Intel® Core™ i5-1235U, 2 P-Cores / 4 Threads, 8 E-Cores / 8 Threads, up to 4.4 GHz, Memory: 16 GB DDR4 SDRAM, Storage: 256 GB, OS: Windows 11 22H2 (OS Build 22621.1555) measured on a HP 17t-cn200

Processor: 12th Gen Intel® Core™ i7-1255U, 2 P-Cores / 4 Threads, 8 E-Cores / 8 Threads, up to 4.7 GHz, Memory: 16 GB DDR4 SDRAM, Storage: 256 GB, OS: Windows 11 22H2 (OS Build 22621.1555) measured on HP 17t-cn200

Processor: AMD Ryzen 7 7730U, 8 Cores / 16 Threads, up to 4.5 GHz, Memory 16 GB DDR4 SDRAM, Storage: 256 GB, OS: Windows 11 22H2 (OS Build 22621.1555) measured on a HP 17z-cp300

Measured by February 2023

Processor: AMD Ryzen 5 7520U 4C/8T, up to 4.3GHz, Memory: 2X4GB LPDDR5, Storage: Western Digital 256GB SSD, OS: Windows 11 Home (Build 22H2 22621.1105), Graphics: AMD Radeon Graphics (Driver: 31.0.12024.1002) measured on Acer Aspire A315-24P

Processor: Intel® Core™ i3-N305 8C/8T, Processor: Intel Core i3-N305, 8 cores/8 threads up to 3.8 GHz, PL1=15 W, memory: 4 x 2 GB LPDDR5, storage: 256 GB SSD, browser: Google Chrome v109, Microsoft Office 365, OS: Windows 11 Home 22H2 v22621.1105 as measured on an Acer Aspire laptop (model A314-36P) to 4.1GHz, Memory: 1x8 GB DDR4, Storage: 256 GB SSD, PC BIOS version: AMI F.01 OS: Windows 11 version: 21H2 2200.739; Intel® Iris® Xe graphics, GFX driver version: 30.0.101.1298, measured on a Lenovo IdeaPad 3 81X8

Measured as of June 2023

Processor: 13th Gen Intel® Core™ i5-1335U, 2 P-Cores / 4 Threads, 8 E-Cores / 8 Threads, up to 4.6 GHz, Memory: 8 GB LPDDR5 RAM, Storage: 512 GB, OS: Windows 11 22H2 (OS Build 22621.1702) measured on a Lenovo Yoga 7i

Processor: 13th Gen Intel® Core™ i7-1355U, 2 P-Cores / 4 Threads, 8 E-Cores / 8 Threads, up to 5.0 GHz, Memory: 16 GB LPDDR5 RAM, Storage: 512 GB, OS: Windows 11 22H2 (OS Build 22621.1702) measured on a Lenovo Yoga 7i

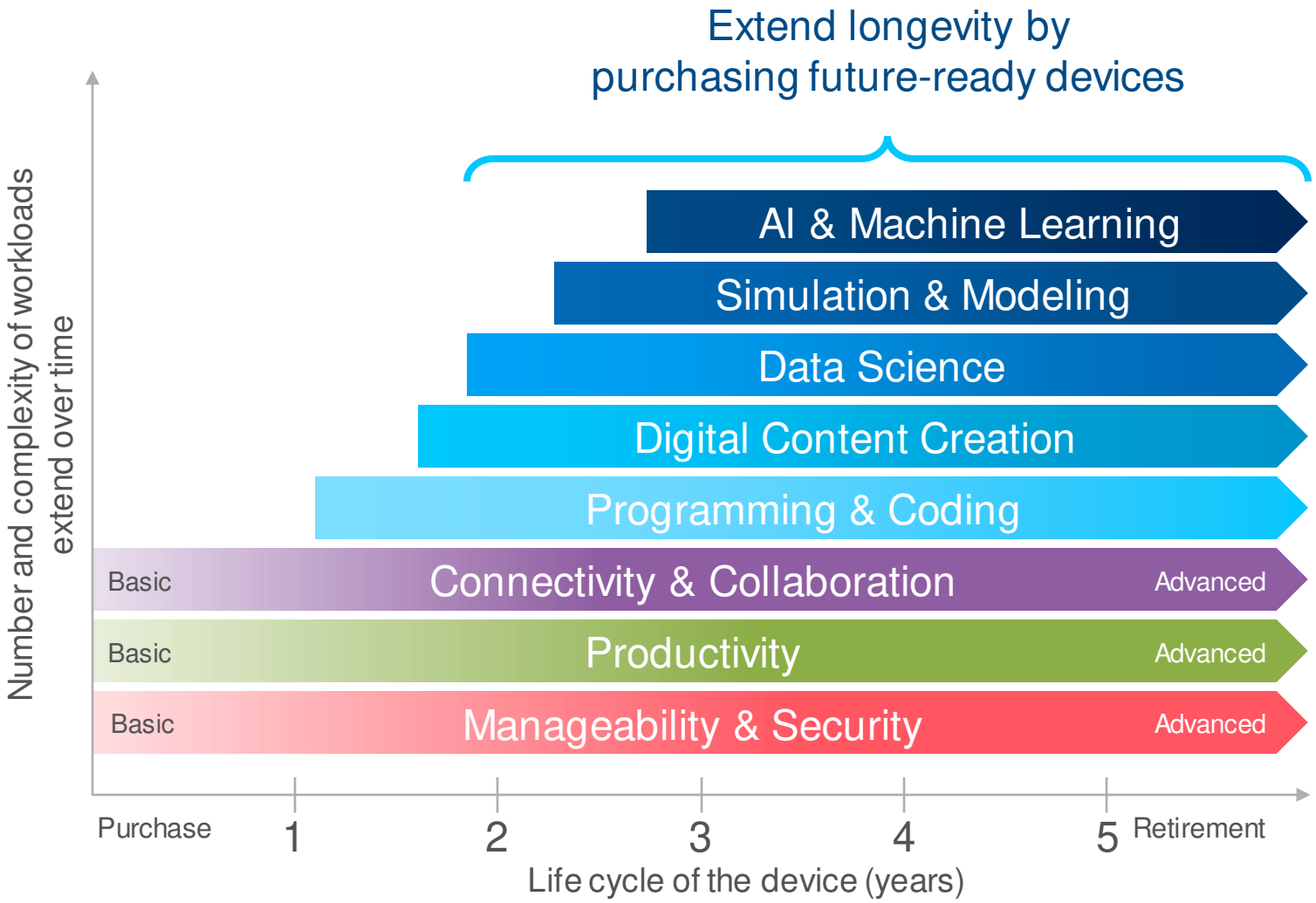
Processor: AMD Ryzen 7 7735U, 6 Cores / 12 Threads, up to 4.55 GHz, Memory 16 GB LPDDR5 RAM, Storage: 512 GB, OS: Windows 11 22H2 (OS Build 22621.1702) measured on a Lenovo Yoga 7

Processor: AMD Ryzen 7 7840U, 6 Cores / 12 Threads, Memory: 16 GB DDR5 RAM, Storage: 512 GB, OS: Windows 11 Pro 22H2 (OS Build 22621.1635) measured on a HP Elitebook845


intel

Plan for the Full Life Span of the Device

Over time, student computing needs become more complex



As students progress in school, gradually developing their higher-order thinking and skills over time, their learning activities place increasing demands on their computers.

Benchmarks : Real, Representative, Relevant and Holistic

Examples of Realistic PC Usages



Play games



Surf the web



Compose music



Math assignments



Touch up photos



Edit videos



Create presentations



Do homework

SYSMark 25 uses popular applications:

Performance metrics should reflect a broad range of usages, not just one niche usage

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Problem Statement: New CPUs and SoCs in the market make it difficult to compare across architectures and OSs. Most cross-platform benchmarks are synthetic and not based on real usages.
Solution: CrossMark provides a cross-platform benchmark that is based on real and relevant usages to compare across iPad, MacBook, Windows and WoA.

Compare multiple platforms now…



…with more coming soon



Across a variety of real and relevant usages



Document Editing | Spreadsheets | Web Browsing | Photo Editing | Photo Organization | Video Editing | Responsiveness

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CrossMark Benefits: *Anyone can download and use CrossMark.*

✓ EASY to get and Install		Download from app stores
✓ FREE version from app stores		PRO version via in app purchase
✓ ONE click to run		Simple easy to follow dashboard
✓ FAST run time		~5 minutes per iteration
✓ Public Data Site		~22k data points available in the public site

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